

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 15 recites using the holding device in a welding process. It is unclear if the welding process is an actual step, since it has not been recited as an active positive step.
4. Similarly, claim 16 recites using the holding device in a spindle shaping step. It is unclear if the spindle shaping process is an actual step, since it has not been recited as an active positive step.
5. Similarly, claim 17 recites using the holding device in a spindle shaping step. It is unclear if the spindle shaping process is an actual step, since it has not been recited as an active positive step.
6. Similarly, claim 18 recites using the holding device in a flame polishing step. It is unclear if the flame polishing process is an actual step, since it has not been recited as an active positive step.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 3-4, 12, 15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (2004/0129027) in view of Mileo et al. (7,215,857). Sugiyama teaches a method for processing a glass base material for optical fiber using an apparatus. The apparatus comprising a pair of rotatable chucks (16) that grasps respective ends of the glass base material (fig. 1, [0022], [0026]) and that are capable of performing relative displacement in an opposing direction (as indicated by arrow in figure 1), a burner for heating the glass base material that is movable along the axial direction as depicted by the arrow on burner (17) in figure 1 ([0022]), and at least one midway holding device (18) in figures 2 and 4 that supports a midway part of the glass base material. Sugiyama further discloses processing the glass base material while preventing the glass base material from being brought into a cantilever state by always supporting the glass base material at two or more points. Sugiyama teaches processing

steps such as cutting of the glass base material or attaching of dummy rods at the ends, results in cantilevering one end of the glass rod. This induces a bend in the glass rod and stresses at the chuck holding the cantilevered rod. Sugiyama suggests in these situations, a supporting structure for holding the midway portion of the glass rod should be utilized ([0027], [0028], [0036], [0037], figures 1, 4). However, Sugiyama does not disclose specifics for an elongation process. Mileo teaches an elongation process for a glass rod comprising supporting the glass rod on a pair of rotatable holders and heating the glass rod along the axial direction with a burner that is movable along the axial direction ([col.1 lines 55-67, col. 5 lines 54-67, col. 6 lines 1-7]). Mileo essentially demonstrates the elongation process can be performed without the assistance of a midway holding device. Other processes such as cutting of the glass rod or attaching a dummy rod involves removing the glass rod from one of the end chucks due to the severing or freeing up the end for attachment. However, both ends of the glass rod in the elongation process are always supported, therefore providing for support in at least two points at all times during elongation. Accordingly, performing an elongation process in the apparatus of Sugiyama would suggest moving the holding devices aside to the vicinity of the chucks so as to not hold the midway part of the glass rod, since the glass rod is already supported at two points at the ends. Because the glass rod does not experience a cantilever state in an elongation process, there would be no reason to utilize the midway holding device during elongation, as suggested by Sugiyama. Sugiyama recognizes the device can be used to perform other processes ([0037]). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of

the invention to have similarly performed the elongation step of Shimizu in the process of Sugiyama, wherein the midway holding devices are moved aside so as to not support the glass rod at the midway part, as both Sugiyama and Shimizu employs similar apparatus features and elongation is a well known process for preparing a glass rod with a desired diameter.

2. Regarding claim 3, at least one of the two points at which the glass base material is supported is at the midway part of the glass material, as can be seen in figures 2 & 4.
3. Regarding claims 4 and 12, the glass base material is held at two midway parts (figure 4).
4. Regarding claim 15, Sugiyama discloses utilizing the apparatus for other processes that requires supporting the glass preform such as a welding process for attaching dummy glass rods to elongate the glass preform ([0037]).
5. Regarding claim 19, Sugiyama discloses a movable headstock (15) comprising a rotatable chuck and that moves along the axial direction of the glass base material ([0022], [0026]). Sugiyama also discloses the holding device (18) is movable along an axial direction of the glass base material and it appears to be independent from the movement of the headstock ([0028], [0022]).
6. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (2004/0129027) in view of Mileo et al. (7,215,857), as applied to claim 1 above, in further view of Shimizu et al. (JP abstract 2000-143268 and machine translation). As mentioned above, Sugiyama teaches other processes involving the heating of a glass rod mounted on a horizontal lathe and held by chucks at either ends.

Sugiyama discloses utilizing the apparatus for other processes that requires supporting the glass preform in a horizontal lathe such as a welding process for attaching dummy glass rods to elongate the glass preform ([0037]). However, Sugiyama does not specify a spindle shaping step. Shimizu also teaches a similar process comprising supporting a glass rod on a pair of chucks, heating the glass rod with a movable burner while stretching the glass rod, and producing a spindle shape end to the glass rod (drawings 1 & 2, abstract, [0011]). As discussed above, since spindle shaping results in one end of the glass rod to be cut, then it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the apparatus of Sugiyama comprising the holding device for the spindle shaping process of Shimizu as this process results in one end of the glass rod to be in a cantilevered state, which would require support at that end to prevent bending of the glass rod. Furthermore, Shimizu teaches the spindle shaping step provides for a preform end shape that helps reduce the drawing time and material loss ([0005]). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have employed a spindle shaping step in the process of Sugiyama as it provides for reduced drawing time for the preform and fiber. Such a spindle shaping step would have been preformed after an elongation step since drawing is performed when the preform has achieved the desired diameter in order to produce fiber with proper diameter and core clad ratio. Also, the spindle shaping step that is providing for the shape necessary to help reduce the drawing time, Clearly, the spindle shaping step would have been performed right before drawing, after elongation.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (2004/0129027) in view of Mileo et al. (7,215,857), as applied to claim 1 above, in further view of Lysson et al. (EP 0 623 563). Sugiyama does not disclose a flame polishing step. Lysson teaches a similar process comprising supporting a glass rod at its ends on chucks, heating the glass rod with a movable heater along the axial length of the glass rod and flame polishing the glass rod. It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed a flame polishing step in the process of Sugiyama as it provides for a better quality surface on the rod. Furthermore, a similarly discussion above regarding the elongation process can be applied. Since the glass rod is already supported at two points at the end by chucks, and the glass rod does not result in a cantilevered state, then the midway holding devices would be appropriately moved aside to the vicinity of the chucks, allowing for the burner to traverse for the flame polishing step. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the holding device of Sugiyama to be at ends of the glass base material, such as at the vicinity of the chucks, since support of the glass base material would not be expected because the rod is already supported at both ends.

Response to Arguments

8. The Applicant filed a translation of the foreign priority document, which removed the Shimizu reference as a 102a reference. However, the Applicant failed to follow the rules for claiming common ownership, to beat the 102e date of Shimizu. Nonetheless, a new rejection has been presented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUEENIE DEGHAN whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on 571-272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Queenie Dehghan/
Primary Examiner, Art Unit 1741